

**To:** Peter Butler[butlerpeter2@gmail.com]  
**From:** Wall, Dan  
**Sent:** Fri 5/8/2015 1:13:51 PM  
**Subject:** RE: Sampling above Howardsville

Peter – Interesting. Bill mentioned this at the last meeting as well. Mn is identified as a chemical of concern in the BERA so the data spoke, but for whatever reason it hasn't been in the forefront of my mind...until now.

Thanks

**From:** Peter Butler [mailto:butlerpeter2@gmail.com]  
**Sent:** Thursday, May 07, 2015 6:00 PM  
**To:** Wall, Dan  
**Subject:** Sampling above Howardsville

Dan – I hope the graph below comes thru well. If not, I can send it in an Excel file.

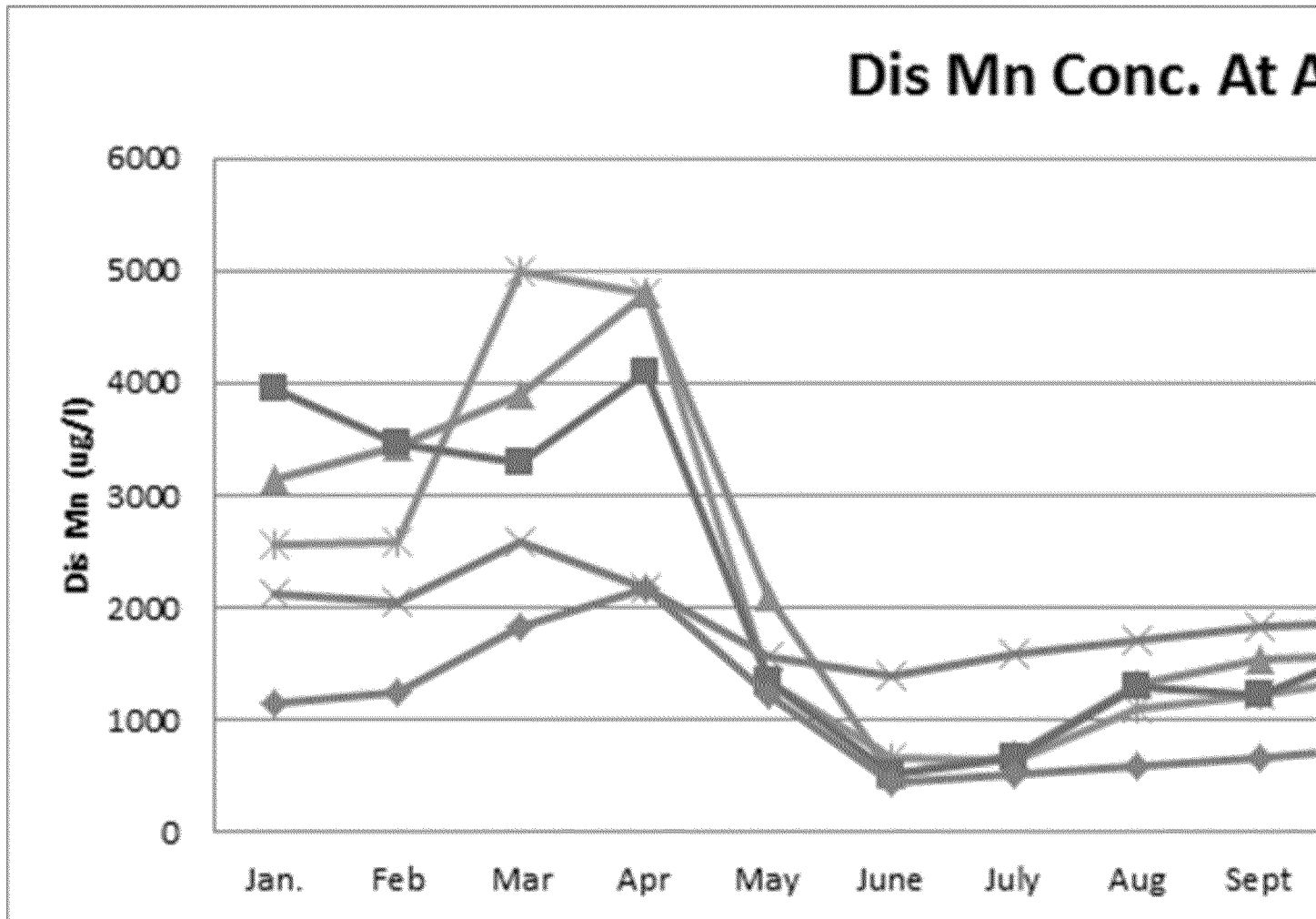
The actual standard is equal to table value standards except in March and April where higher than TVS numbers for aquatic life apply. As you can see, before 1996, manganese levels were not really of concern. Since then, they have climbed dramatically, and we don't know why. I'm not sure manganese was identified as a metal of concern in the BERA, but it probably should be.

The bulkhead creating the Sunnyside mine pool was installed in mid-1996, so possibly the hydrology has changed, driving manganese in groundwater towards the Animas watershed. The Sunnyside mine is loaded with manganese.

Or when Sunnyside Gold disturbed mine tailings from the Sunnyside mine during remediation projects, maybe that triggered a spike, although by now I would expect the spike to be dropping. Sunnyside removed about 112,000 cubic yards in Eureka in 1996-97. Then removed tailings by the Animas near the power plant in 2003.

The one mine we identified as a high manganese loader is the Senator. That's why we'd like to see it sampled for manganese loading to see if it's changed since the mid-1990's. In addition,

Sunnyside put a bulkhead in the Ransom adit which is nearby in 1997. Don't know if they are hydrologically connected. We're not sure if the Senator is on BLM land or private (like to know that too).



Peter Butler

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